POLI 395: Introduction to Statistics

Spring 2019

Razor 119 TTh 1:00 – 2:15

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COURSE OBJECTIVES AND LEARNING OUTCOMES

This course introduces students to basic ideas in scientific epistemology, social science research design, and the application of all these ideas to substantive questions in political science.

Students will be able to:

1. understand basic approaches to the scientific study of the social world to substantive topics in political science;
2. execute and interpret statistical analysis of quantitative political data to answer about substantive questions in political science; and
3. recognize and understand threats to inference based on empirical data in political science, including the weaknesses of research designs and statistical analyses.

GRADING POLICIES AND ASSIGNMENT DETAILS

Grade Components:

- R lab exercises: 25%
- Individual and Group assignments: 35%
- Group Poster: 15%
- Group Paper: 25%

Exams: There are no exams in this class.

R lab exercises: There is a one-hour R Lab each week. That lab will be staffed by a graduate student who will help you with learning R (more below concerning R). Each lab will have an exercise that will be graded. You may work with others in completing these exercises. However, you must turn in your own work.

Attendance: Attendance is advisable. Class time will be spent on multiple group projects. Class time will also provide you an opportunity to ask questions of the

instructor concerning readings, etc. The class will not be a lecture-based class. Instead it will involve considerable hands-on work.

Individual and Group exercises: Toward the beginning of the semester you will select into a group. The group will focus on a specific research question and over the course of the semester you will learn how to answer your group's question. Throughout the semester there will be individual and group projects designed to teach you aspects of research design. You may expect an assignment each week.

Group Poster: In the last week of the semester your group will present a poster detailing your group's project. You will learn the basics of designing a scientific poster and will be expected to present your results.

Group Paper: At the end of the semester your group will provide a written paper concerning your project.

COURSE POLICIES

T/A Office Hours: The teaching assistant for this class is Carly Mayes, a PhD student in the political science department. Carly will conduct lab sessions scheduled for Thursday evenings at 7 pm and Friday afternoons at 1:00. Her office is located in Herzstein 124 and you can email her at carlymm@rice.edu.

Late Work: Assignments are due at the date and time specified on Canvas. Late assignments will be marked off at 5 percentage points for the first 24 hours late, and an additional 10 percentage points for every subsequent 24 hours late.

Important note: Students are responsible for submitting working, uncorrupted files for all assignments. If a file is corrupted and needs to be re-sent, and re-sending happens after the assignment deadline, a late penalty will be assessed.

Penalties for late R Lab exercises or missed assignments may be waived under the following three circumstances:

(1) a death in the immediate family (parent, spouse, sibling, or child) within two weeks before the assignment due date;
(2) in the event of an unforeseeable medical emergency affecting you, your spouse, or your child; or
(3) participation in a Rice-sponsored academic or sporting event.

In the event of (1) or (3), you must give me **at least 24 hours advance notice and preferably more** (via e-mail or a phone call) that you will miss the assigned task, or it may not be made up. I may require supporting documentation. All penalty waivers are at the discretion of the instructor. Under these circumstances, I will extend your

homework due date. **Important note: conflicts with a work schedule, non-academic trip, or vacation are not a valid reason to miss any assignment** and cannot be the basis for a penalty waiver.

Honor Code/Academic Misconduct: All forms of academic misconduct will be handled according to the Rice University Honor Code. Details on the Honor Code are available at http://honor.rice.edu/honor-system-handbook/.

If you ever have any questions about what you should do to stay within the honor code on a particular assignment, **contact me with your question and I can assist you**. I cannot guarantee a timely response unless you contact me at least 24 hours in advance of the time the assignment is due.

Students with Disabilities: If you have a disability and require accommodation in this class, please contact me as soon as possible (within the first two weeks of class) to discuss these accommodations. You will also need to contact the Disability Support Services Office (telephone extension: 5841) in the Allen Center.

Syllabus Change Policy: All policies of this syllabus may be changed by Prof. Wilson with advance notice.

COURSE MATERIALS

Required Text:

- Dimiter Toshkov. *Research Design in Political Science*. Palgrave Macmillan, 2016.

Other readings are available on Canvas.

Software: This course will teach material primarily through R. R is an open source, free statistical program. You will need to install R on your own computer.

R is free and available for Windows and Macintosh from http://cran.r-project.org/. RStudio is also free and available for Windows and Macintosh at http://www.rstudio.com.

All students must have a valid Rice e-mail address and login (and access to Canvas) to participate in this course.

COURSE OUTLINE AND ASSIGNED READINGS

Date	Topic	Readings
Jan. 8	**Course Introduction**	Read one of the following: Christensen, Darin, and Simon Ejdemyr. "Do Elections Improve Constituency Responsiveness? Evidence from Us Cities." *Political Science Research and Methods*: 1-18. Anderson, Noel, and Alec Worsnop. "Fatality Thresholds, Causal Heterogeneity, and Civil War Research: Reconsidering the Link between Narcotics and Conflict." *Political Science Research and Methods* 7, no. 1 (2019): 85-105. Lee, Seonghui, Agustina Haime, and Randolph Stevenson. "Measuring Knowledge of Parties' Legislative Seat Shares." *Political Science Research and Methods* 7, no. 1 (2019): 185-96. Volden, Craig, Alan E. Wiseman, and Dana E. Wittmer. "Women's Issues and Their Fates in the US Congress." *Political Science Research and Methods* 6, no. 4 (2018): 679-96.
Jan. 10	**Sampling of Political Science**	Toshkov, Chapter 1
Jan. 10	**Basics of RStudio**	Lab
Jan. 15	**Types of Research**	Toshkov, Chapter 2, pp. 23 - 44.
Jan. 17	**Research Questions**	Toshkov, Chapter 2, pp. 44 - 55 Gustafsson, Karl, and Linus Hagström. "What Is the Point? Teaching Graduate Students How to Construct Political Science Research Puzzles." *European Political Science* (2018): 1-15.
Jan. 17	**R and data exploration**	Lab
Jan. 22	**Literature**	Toshkov, Chapter 3, pp. 56 - 67 Knopf, Jeffrey W. "Doing a Literature Review." *PS: Political Science & Politics* 39, no. 1 (2006): 127-32. The "CRAAP" test (in readings)

Jan. 24	**Literature/Theory**	Toshkov, Chapter 3, pp. 67 - 80
Jan. 24	**R and data transformation**	Lab
Jan. 29	**Hypothesis Generation**	Toshkov, Chapter 3, pp. 80 - 82 Dahlberg, Stefan, and Jonas Linde. "Socialization or Experience? Institutional Trust and Satisfaction with Democracy among Emigrants in Different Institutional Settings." *The Journal of Politics* 80, no. 4 (2018): 1389-93.
Jan. 31	**Concepts**	Toshkov, Chapter 4, pp. 81-100
Jan. 31	**R and creating alternative measures**	Lab
Feb. 5	**Operationalizing Concepts**	Toshkov, Chapter 4, pp. 100-106.
Feb. 7	**Spring Recess**	
Feb. 12	**Measurement (1)**	Toshkov, Chapter 5, pp. 107-116
Feb. 14	**Measurement (2)**	Toshkov, Chapter 5, pp. 117 - 122 van der Windt, Peter. "Can Development Aid Empower Women? Evidence from a Field Experiment in the Congo." *The Journal of Politics* 80, no. 3 (2018): 1039-44. (And Appendix)
Feb. 14	**R and graphics**	Lab
Feb. 19	**Measurement (3)**	Toshkov, Chapter 5, pp. 123 - 144
Feb. 21	**Measurement (4)**	Kastellec, Jonathan P., and Eduardo L. Leoni. "Using Graphs Instead of Tables in Political Science." *Perspectives on politics* 5, no. 4 (2007): 755-71.
Feb. 21	**R and robustness of measures**	Lab
Feb. 26	**Causality (1)**	Toshkov, Chapter 6, pp. 145 - 160

		Mutz, Diana C. "The Dog That Didn't Bark: The Role of Canines in the 2008 Campaign." *PS: Political Science & Politics* 43, no. 4 (2010): 707-12.
Feb. 28	**Causality (2)**	Toshkov, Chapter 6, pp. 160 - 165
Feb. 28	**R and measures of association**	Lab
March 5	**Experimental Design (1)**	Toshkov, Chapter 7, pp. 166 - 186
March 7	**Experimental Design (2)**	Toshkov, Chapter 7, pp. 186 – 199. Munger, Kevin. "Tweetment Effects on the Tweeted: Experimentally Reducing Racist Harassment." *Political Behavior* 39, no. 3 (2017): 629-49.
March 7	**R and t-test, ANOVA**	Lab
March 12	**Spring Break**	
March 14	**Spring Break**	
March 19	**Large-N Designs (1)**	Toshkov, Chapter 8, pp. 200 - 227
March 21	**Large-N Designs (2)**	Toshkov, Chapter 8, pp. 227 - 257 Enos, Ryan D., Anthony Fowler, and Lynn Vavreck. "Increasing Inequality: The Effect of GOTV Mobilization on the Composition of the Electorate." *The Journal of Politics* 76, no. 1 (2014): 273-88.
March 21	**R - TBA**	Lab
March 26	**Comparative Designs (1)**	Toshkov, Chapter 9, pp. 258 - 269
March 28	**Comparative Designs (2)**	Toshkov, Chapter 9, pp. 269 – 284 TBA Reading
March 28	**R - TBA**	Lab
April 2	**Case Studies (1)**	Toshkov, Chapter 10, pp. 285 - 297
April 4	**Case Studies (2)**	Toshkov, Chapter 10, pp. 297 – 309

		TBA Reading
April 4	**R - TBA**	Lab
April 9	**Mixed Designs (1)**	Toshkov, Chapter 11, pp. 310 - 327
April 11	**Mixed Designs (2)**	Lammers, Pina Lena, Torsten Richter, Maren Lux, Jonah Ratsimbazafy, and Jasmin Mantilla-Contreras. "The Challenges of Community-Based Conservation in Developing Countries—a Case Study from Lake Alaotra, Madagascar." *Journal for Nature Conservation* 40 (2017): 100-12.
April 11	**Developing your Poster**	Lab
April 16	**Communicating Research**	Toshkov, Chapter 12, pp. 328 - 335
April 18	**Ethics**	Toshkov, Chapter 12, pp. 335 - 344
April 18	**R - TBA**	Lab
May 1	**Paper Due**	